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**PARTICIPATORY APPRAISAL OF OLIVE PEST MANAGEMENT IN ALBANIA
TO INITIATE IPM CRSP ACTIVITIES IN EASTERN EUROPE**

By

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INTRODUCTION

Integrated Pest Management Collaborative Research Support Program (IPM CRSP) activities at a new site are initiated with a participatory appraisal (PA) of the host country situation relevant to the goals and objectives of the IPM CRSP. When conducting the PA the investigators attempt to sample, through informal interviews and other techniques, all of the pertinent groups of stakeholders. Research, training and information exchange activities relevant to IPM are then prioritized according to results from the PA, and a workplan is derived based upon this process. A baseline survey and crop/pest monitoring are conducted to verify the results of the PA with larger samples and more quantitative methods. Activities are conducted with stakeholders in a participatory manner (e.g., on-farm research, participatory short- and long-term training) to enhance information dissemination. Research results are also transferred to large-scale stakeholder training programs to maximize impact.

The purpose of this paper is to document the PA process and major results for the IPM CRSP/Albania project. The initial stages of the workplan development process are also included because these depend directly on PA findings and results.

IPM CRSP involvement in Albania began with two visits by teams of IPM CRSP scientists to Albania, in September 1996 and February 1998. During these visits, relationships were developed with a number of Albanian agricultural institutions that were potential collaborators. During both visits, and most particularly during a stakeholders meeting in February 1998, olive was chosen as the top priority crop for the IPM CRSP project. A proposal was developed by the IPM CRSP in February – April 1998, and the USAID/Albania Mission funded it in May 1998.

Olive is a major crop in Albania: in 1996 the country produced 27,660 metric tons of olives, and olive trees were found in 22 of the 36 districts of Albania (Ministry of Agriculture and Food, 1997). The Berat district ranks first in the country for the number of olive trees in production (450,000), while Vlore is second with 412,000. In terms of olive production, the Mallakaster

district ranks first with 4500 metric tons annually, while Vlore is second with 3290 metric tons. Olive is an increasingly important crop; the total number of olive trees in Albania rose from 2,931,000 in 1994 to 3,405,000 in 1996 (Ministry of Agriculture and Food, 1997).

With good management a tree can produce up to 100 kg of olives (Daku *et al.*, 1999). In 1996, average yield was 9 kg per tree (Ministry of Agriculture and Food, 1997), so there is plenty of room for improvement in yield. The IPM CRSP team (February 1998 trip) also visited a local market and observed that the so-called “good quality” olives have sustained substantial levels of damage. Thus, there is much room for improvement in terms of quality also.

METHODOLOGY

The team for the PA was composed of American scientists with relevant expertise from IPM CRSP institutions, and Albanian scientists with relevant expertise from the three Albanian government institutions most directly involved with olive pest management; these are the Fruit Tree Research Institute (FTRI), the Agricultural University of Tirana (AUT) and the Plant Protection Research Institute (PPRI). Administrators of these Albanian institutions chose members to represent their institutions on the PA team. The team members for the IPM CRSP/Albania Participatory Appraisal are listed in Appendix I, and a brief overview of the schedule for the PA is found in Appendix II.

Based on data noted above concerning major olive producing areas, and on which areas the co-Principal Investigators would realistically be able to travel to regularly, the districts of Vlora, Berat and Fier were chosen for the PA fieldwork (sampling of farms and farmers). The actual IPM CRSP project site location would be chosen later based on PA results.

Preliminary Arrangements

Two of the US team members arrived a week before the PA started to make preliminary arrangements. They met with the USAID/Albania Project Manager for Agriculture, the USAID/Albania Program Officer and other members of USAID. Contacts were made for hiring a recorder/secretary and for arranging transportation for the PA. They went to AUT to meet with the Head of the Department of Horticulture and three members of the AUT PA team. They also met with the Head of the Department of Farm and Agribusiness Management, concerning the PA.

These US team members traveled to Durres to meet with the PPRI Director, and to Vlora to meet with the FTRI Director along with six FTRI research scientists. In the meeting with the FTRI the villages and farms to be visited during the PA were selected. The selections were made by this group because FTRI scientists were more familiar with the area to be sampled than scientists from the other institutions. It was decided to use five teams of four scientists each because this would provide a better sample size from which to draw conclusions. The villages selected were: (1) Vlora District: Kanine, Bestrove, Cerkovine; (2) Fier District: Patos, Cakran, Vajkan, Damsi; (3)

Berat District: Kutalli, Otlake, Bilce. The area of Himara (Vlora District) was excluded as a potential village to visit farmers because of its distance from Fier and security concerns.

Meetings were also held with the AUT Rector and with the Head of the Department of Agricultural Economics and Rural Development. Throughout these meetings the US-based scientists emphasized that the IPM CRSP is a collaborative effort; through it Albanian institutions can cooperate to conduct research together and with US institutions.

Initial Activities

Fier was chosen as the base of operations for PA fieldwork because: (1) it is located in a major olive growing region of Albania; (2) it is relatively centrally located between Vlora, Tirana and Durres; and (3) the security situation was better there than in nearby cities such as Vlora or Berat. The entire team first united in the Hotel Fieri meeting room the afternoon of 22 July. The IPM CRSP/Albania Site Chair and IPM CRSP Assistant Program Director welcomed everyone to the PA. The Assistant Program Director made a presentation about the IPM CRSP, including its goals, objectives and site locations. A representative of AUT then made a presentation about AUT and its IPM activities. A PPRI representative made a similar presentation for the PPRI, and an FTRI representative did the same for his institution. Afterwards, all of the remaining team members introduced themselves.

Workshop on PA Methodology

On the following morning the PA Team Leader led a workshop on PA methodology. He started with team-building techniques, which were particularly important in this context because of minimal collaboration between the Albanian institutions in the past. In one of these activities the PA team divided into three groups and each formed a circle. Each group was timed to see how fast they could throw a tennis ball back and forth to each other so that every person in the group had caught and thrown the ball; this was to build an attitude of teamwork. The Team Leader talked about team building, being good listeners, triangulation, optimal ignorance and several tools used to obtain information. PA tools discussed were:

- 1) Maps: plotting the production area, tools, irrigation, and so on.
- 2) Seasonal calendars: detailing how the year is divided, when peak activities are, when labor is available, labor uses (including household and non-farm), labor supply, growing seasons for other crops, and so on. Both the household and village levels are important.
- 3) Timelines: these are similar to seasonal calendars, but are focused on a process or activity. For example, how household labor is distributed during a day.
- 4) Decision-making: who makes certain types of decisions, such as what pesticide to purchase.
- 5) Flow diagrams: to diagram parts and links in processes.

It was emphasized that important information can be gained through informal interview techniques, and often more valuable information is gained this way than through a formal survey. Other concepts presented during this session were semi-structured discussion, direct observation

and ranking. With ranking, one needs to first get a list of problems from the stakeholder being interviewed. The stakeholder then prioritizes the problems by giving each one a certain number of stars, points or a score.

That afternoon the team reviewed what was learned that morning. There was a positive reaction from the Albanian team members regarding the planned PA methodology. Ways to encourage farmers to provide information were discussed.

The PA Team Leader discussed sampling methods, and made the following points:

- 1) The objective is representivity – to maximize the diversity of representivity.
- 2) The team should visit some villages with many olive trees, and some with few.
- 3) Interview both men and women.
- 4) Look for other sources of diversity, and attempt to obtain a diverse sample.
- 5) Talk with at least three different people at length.
- 6) Don't spend the whole time in a large group – get out to see the orchard also.
- 7) Mapping is a good technique to use with a group.
- 8) It is best to meet with farmers close by their house or their farm.
- 9) It is important that all team members participate in gaining information from farmers.
- 10) Avoid positive or negative leadings when asking questions.

Every group will report to the others in the afternoon debriefing sessions. The data will not be analyzed in a detailed, quantitative manner with statistics; rather, the team will analyze the information in a qualitative manner with some use of quantitative figures in only certain instances. The goal is to obtain an overall picture of the situation in a brief amount of time.

The team decided they needed to learn about the general level of knowledge of farmers in olive pest management and IPM, farmers' attitudes about pesticides, other technical aspects of olive production, and the socio-economic features of olive production in Albania. The team made up a checklist of questions to ask farmers:

- How many trees do you own or manage?
- Is olive your main source of income?
- How much do you invest in olive production?
- How much of your land is planted to olive?
- What are the main problems in growing olives?
- What are your marketing constraints?
- How many times per season do you use control measures for the various pests?
- Have associations of olive trees been created?
- Who owns the trees?
- Does the owner manage the trees?
- How much olive oil do you consume and how much do you sell?
- Where are the olives processed?
- How are olives stored? Are there any problems with storage?
- Do you need credit and is credit available?
- What are farmgate prices for olives and oil?
- What types of mechanization do you use?

- How do you prune?
- How do you harvest?
- What kind of government support do you have?
- Is the available labor sufficient to properly care for the olive trees?
- Is there a need for subsidies to help fight olive fly?
- Are you applying biological control in any way?
- Are you producing organic olive oil?
- Who makes decisions on pest control and pesticide use?
- What are your sources of information for these decisions?
- Do you cooperate with other farmers to control olive fly?
- Do you monitor olive pests?
- What olive varieties do you have on the farm?
- What are your technical and economic needs from researchers and the extension service?
- Who sprays – husband or wife?
- Who does other forms of labor related to olive production?
- Do you prefer to continue farming or to move to off-farm activities?
- Why is pest infestation higher in some years than others?
- What is the cost structure of olive production?
- Is there any NGO working with you? What do you think of their role in improving your skills?

The Team Leader and others also emphasized the importance of direct observation to verify answers from farmers and uncover further valuable information. Team members were encouraged to look for themselves at the farmers' situation.

The PA Team Leader divided the 20 team members into five groups so that there was a mix of disciplines and institutions in each group. New groups were formed for each day of sampling. Each group was accompanied by a translator. The team attempted to have some diversity of farm sizes in the samples. Each day each group informally interviewed several farmers, with a mix of men and women. The groups returned to the hotel just after mid-day. In the afternoon the entire team met together for a debriefing session, during which each group reported to the others on their major findings.

On 24 July the PA team visited villages in the Vlora area: Kanine, Bestrove, and Cerkovine. On 25 July the team sampled villages in the Berat area: Kutalli, Otlake and Bilce (there were four teams due to the fact that two Albanian team members had duties elsewhere and one US team member was ill). On 26 July five groups visited villages in the Fier area: Patos, Cakran, Vajkan and Damsi.

FINDINGS, RESULTS AND WORKPLAN DEVELOPMENT

Informal Interviews with Farmers

Below are four group reports from the Vlora area.

Bestrova (Group 1).

- Every family owns 140 to 200 trees. Each person owns 1-20 trees. Farmers have trees in 3-4 locations, 2-3 km from their house.
- 80% of olive production is for oil. They send olives to the oil factory and sell 20% of the oil production. They also have forages, vegetables, vineyards, and some sheep and cows.
- Remittances from emigration are used to improve their houses.
- They say they need more fertilizers, irrigation, chemicals, and credit.
- The main problems are irrigation and lack of ability to spray for pests.

Bestrova (Group 2).

- 10-20 trees per person.
- Olive production is complementary with other crops and keeping livestock.
- Primarily family labor is used.
- Lack of irrigation is the most important problem.
- Low input and low output.
- 100 kg of olives costs 8000 lek to process; gross income from this is 60,000 lek.
- Farm population old and young. No young men.

Cerkovina (actually visited a nearby village with a name meaning "3 Brothers").

This group visited six men and three women.

The village has 2500 members and 500 families; 45-65 olive trees per family.

1. Problems with production technology, as perceived by the farmers:

- Irrigation
- Pesticide spraying was done only once per year.

2. Property form

- Before 1990, these farmers were members of agricultural cooperatives. Today the property is private. Ownership of land and trees is clear here; there are written titles.

3. Issues with work arrangements

- Crops cultivated: wheat, corn, olive, grapes, vegetables, fruit trees. This activity is combined with livestock such as cattle and sheep.
- Decision-making is done by both men and women, and done cooperatively by the members of the families.
- The entire production process is conducted by all the family members; all work is done by

hand with no machinery, and equipment is old or primitive.

- There is a need to hire labor but they are not financially able. Family labor is mostly used.
- The farmers want to consult with extension specialists, but cannot pay them.
- One strong pruning is done right after harvest, and minor pruning (“cleaning up”) is done other times.

4. Financial and production issues

- Cannot afford to buy pesticides.
- Part of olive production is sold to the market, and part is used for family consumption.
- 100 kg of olives produces 25 liters of oil.
- In each case the income from emigration is still important.

5. Other issues

- No awareness of pesticide dangers.
- Prioritized olive pests: (1) olive fly; (2) black scale; (3) olive moth.

Kanina.

1. Background on Kanina village:

- 460 families, 2500 people
- 40,000 olive trees
- Farmers interviewed have 80-120 olive trees/family. The olive trees are located in 2 or 3 places.

2. Last year produced:

- 0.4 tons of oil of which 0.3 tons were sold.
- 0.5 tons of table olives, all were sold (30-50kg/olive tree).
- Farmer had: two cows

3. Farmer is satisfied with prices:

- 1 liter of oil sold for 300 lek
- 1 kg of table olives sold for 100 lek

4. Income:

- 300 liters of oil x \$2 = \$600.00
- 500 kg olives x \$ 0.75 = \$ 360
- cow: 8 liters of milk x 120 = 960 liters of milk; 960 x \$0.3 = \$320.00
- Conclusion: olive is a cash crop.

5. Labor is done by family members, children help also when out of school. 300 young people from this village working abroad. Many others work in the city.

6. Biggest problems that they perceive:

- Spraying for leaf spot
- olive processing

7. Pest and disease ranking:

- 1) leaf spot (most dangerous)
- 2) olive moth
- 3) olive fly
- 4) black scale (least dangerous)

8. Practices (or services) ranking:

- 1) Irrigation (most important)
- 2) Fertilizer
- 3) Pest protection, pesticides
- 4) Tilling (least important)

9. No treatment at all – Why?

Money
Access to pesticides
Lack of spraying equipment.
Plant protection needs to be applied by all farmers at once.

10. Other constraints:

Processing
Marketing
Credit
Transport costs

11. New practices

Pruning, manure (fertilizer)

Two of the reports from the Berat area are shown below as examples.

Otlake.

1. The farmer said that the agronomist is a very good person with a high level of knowledge, and he visits regularly. He thought that the University and other institutes should provide information

for farmers from research.

2. He knows how to manage crops and he is aware of technologies.
3. Olive growers had the same concerns as the farmers in Vlora: irrigation, fertilization, pruning, spraying, harvesting.
4. He was particularly well-informed about quality of olives and he cures the olives for the markets. Buyers come to him from the city.
5. Every family had 12 trees/person.
6. The farmer needs more labor, and he wants to hire labor.
7. They need help in organizing associations.
8. He wants to know more about biological control.

Kutalli.

Farmer 1.

- Mainly a farm mechanic.
- This village allocated 7 olive trees per person.
- This family has 35 trees.
- These trees are for oil, and over 100 years old. Variety: “Calinyot”.
- The farmers does all his own pruning with his wife.
- In a good year he gets 150 liters of oil (last year was an off-year, about 30 liters).
- He digs a shallow hole near the tree to catch rain.
- He knows he needs to irrigate, but cannot afford to. His wife carries water by donkey for other crops and domestic use.
- He applies no sprays. Olive fly is the main pest.
- Harvests in late November. Picks olives up from the ground, knocks them off the tree with a stick. He saves them till he has 500kg before bringing them to the factory. He pays to have them processed, all for family consumption.
- He spends 2 months per year, or about 20% of his time, on olives.
- He has 0.5 ha of grapes for the family’s wine and raki. He sprays these (visible residue of Bordeaux).

Farmer 2.

- Formerly supervised orchard crew at a collective, 2.6 ha.
- Has 80 trees now (1.1 ha), same ratio of 7 trees per person, also over 100 years old.
- His planting is 1 km from his house.

- Main problem is irrigation.
- Main pest is olive fly, also black scale.
- No spraying now.
- Prunes twice per year: Nov-Feb and March-April.

Farmers are limited as to what crops they can afford to spray – they choose the most sensitive.

Two of the reports from the Fier area are shown below as examples.

Cakran.

- 5 trees/person
- Irrigation constraints, same as other areas.
- Poor quality control for pesticides results in uneven results.
- Extension specialist that seems to know what he is doing.
- Yields

	Alternate year
before 1991: 150 kg	20 kg
after 1991: 70 kg	10- 15 kg
- This farmer said he would hire extra labor if he had the money.
- We met our first real businessman. Has nursery to sell trees for expansion into the irrigated flatlands. Sells pesticides and has a restaurant.
- Problems: Olive fly, Black Scale, Leaf Spot

Vajkan.

- Low number of trees: 2 olive trees/person.
- All farmers had outside jobs; most do not give much attention to olives.
- Half sprayed for olive fly, though efficacy questioned.
- Admitted they did not have much knowledge of biology, but felt they didn't need knowledge because advisor tells them what to do and when to do it.
- Wanted government support for irrigation and spraying and would even pay a tax. Forming associations is not possible here because of the number of families (600).
- Insect pests come from neighboring trees, not just neighboring orchards, because of ownership patterns.
- Each family has 4-5 ha, mostly planted with crops.
- The trees were planted far apart so more trees can be planted without needing more land.
- The production was 4-5 kg/tree.

After groups reported on their results from interviews in the Vlora area (24 July), a discussion ensued. It was noted that irrigation problems emerged as one of the most important issues that farmers encounter. Another prominent issue is that many young people do not work in Albania because they emigrate to find work. The question was raised: If they want to increase their activities are they able to do so? The team decided they needed more information to answer this question.

Then the team identified topics to be targeted the following day. This was based on findings of 24 July, and what topics had been missed from the checklist drawn up on 23 July. The list entailed:

- source of information for farmers
- irrigation techniques
- fertilization techniques
- use of bio-control
- labor supply
- replanting or new plantings of olive trees
- harvest timing and method
- olive crop budget
- marketing constraints
- orchard floor management
- cost benefit for grapes, olives and tomatoes
- table olive conservation
- impact on management in off-production years
- access to inputs
- transport

After reporting findings on 25 July from the Berat area, the team summarized all findings to date. To the question, “If you have some extra money how will you invest it?,” the most frequent answer was that farmers want to invest primarily in irrigation because water is a big problem. Another big problem is transport of the yield – some farmers use donkeys. Every sampled family had a member emigrating to find work, and the income from this is invested in their farm. In southern Albania the shortage of labor due to emigration can cause problems. Farmers need the advice of a specialist for fertilization. One farmer intended to fertilize but his neighbors are not financially able. In general, there is a lack of available information. Those who talk to the extension agents know they need more information.

On 26 July, after the reporting session on results from the Fier area, the team held a brainstorming session of possible project topics for the IPM CRSP over the next three years. Over 25 topics were listed, ranging from technical to socio-economic issues:

Technical issues

- Three broad goals: (1) The main problem is irrigation – what can be done to address this? (2) A short-term IPM program with these constraints; (3) A long-term IPM program for the time after the constraints are lifted.

- There is good biological control of black scale now, so we should find control methods for olive fly that will not disrupt this.
- The organization of orchard floor management.
- Fertilization.
- The factors that affect quality of olive oil, including harvest timing.
- Training farmers in IPM philosophy.
- Organic olive production.
- Administration of phytopathology related to olive quality. The monitoring of diseases and pests by zones and cultivars.
- Survey of natural enemies of pests and possibility of importation. Establish legal pesticide residue levels for olive oil.
- Timing of spraying based on pest phenology.
- Interaction between weeds, insects and diseases.
- Guidelines for cultivation of table olives.
- Integration of new classes of compounds into current IPM programs.
- Develop resistant cultivars.
- Harvesting and transport issues.
- GIS/GPS for IPM.

Socio-economic issues

- The analysis of socio-economic factors affecting adoption of IPM practices.
- The cost/benefits of IPM on olive.
- What kinds of investments they need. The financial analysis of long- and short-term IPM programs.
- A strategy with the farmers working together in IPM associations. They need IPM information systems.
- The development of export markets.
- Renovation and construction of processing facilities.
- Profitability of olives under the various growing conditions.
- List of new olive groves.
- Pricing system for different qualities of olives and olive oil.

Appraisal of other Albanian Institutions

On 27 July the entire team first visited a FTRI olive experiment station in Cerkovine, Vlora. FTRI personnel explained pruning and other experimental activities recently conducted there. Then the team visited an olive processing facility nearby, and the manager/owner explained how the olives are processed and the constraints he faces. After that, the FTRI team presented their glasshouse and laboratory facilities, and the PA team subsequently went on to the FTRI central office in Vlora.

After returning to Fier, there were several presentations regarding how IPM is conducted in the US and Albania. An American entomologist on the team introduced the main points of the IPM program for apple (with some added information about grape) in Virginia, as an example of a US IPM system. Then a PPRI representative presented the PPRI's ideas and efforts concerning olive IPM in Albania. He said that from 1990 to the present olive production has increased. They have studied the pests such as olive fly, olive moth, black scale, *Psylla*, and leaf spot. They are introducing forecasting charts and communicating with farmers. A monitoring system is set up.

A representative of the FTRI presented the components of an olive IPM strategy that the FTRI has assembled to date. After monitoring they defined the main pests on olive trees. Pests of economic importance include *Dacus*, *Prays*, *Saissetia* and *Cycloconium*. Control methods follow a seasonal calendar:

Jan-Feb	Copper-based fungicide for <i>Cycloconium</i>
Mar-Apr	<i>Bt</i> for <i>Prays oleae</i> ; <i>Entomophthora</i> for <i>Saissetia</i>
Jun-Oct	Traps for olive fly; localized treatment and pheromone for <i>Prays</i>
Oct	Copper-based fungicide for <i>Cycloconium</i>
Nov-Dec	Mechanical methods: early olive harvesting

An AUT representative talked about the University's experience regarding olive IPM. He said that AUT has research experience with olives. All the agricultural institutes in Albania have their origin in AUT. One three-year study with pheromones was conducted. Another study looked at pest life cycles. Olive fly traps were observed in another. They are attempting to apply new monitoring efforts, and introduce new IPM elements. He said we need to provide a simple monitoring process to the farmer.

The Team Leader asked members of the team to talk about the strengths of institutes other than their own. After no comments were made, he then led the group in listing strengths / accomplishments of the Albanian olive IPM programs at the PPRI, FTRI and AUT. After much discussion, the team agreed upon two items: (1) Identification of important insect pests; (2) Some components of an IPM strategy for olive have been assembled.

In the morning of 28 July the team had a short session in Fier in which it divided into groups and came up with possible short-term research plans to help an Albanian family of 5 that owned 100 olive trees. After this exercise the PA team drove to Durres, where it briefly visited the PPRI. After arriving in Tirana, the PA team visited AUT's experimental olive grove.

Planning Workshop

The workshop to synthesize the PA results and develop the workplan was held in a conference room in the Ministry of Agriculture and Food building. This commenced the morning of 29 July. The IPM CRSP/Albania Site Chair led the workshop and began by laying out the following process:

- 1) Develop project titles.
- 2) Categorize the titles.

- 3) Rank the titles.
- 4) Prepare 2-page research proposals for each project. These are written by research teams, hopefully with at least one person from the FTRI, PPRI, AUT and USA on every project. Proposals must be collaborative.
- 5) Develop the budget.
- 6) Brief discussion of proposals.
- 7) Translate Albanian proposals into English.
- 8) Discuss equipment.
- 9) Decide on Site Coordinator.
- 10) Decide on research site location.
- 11) Finish workplan in USA.

Four groups were established to brainstorm project titles. After listing these up front, and making sure there was no duplication, there were 43 titles. These were then categorized as noted below.

PROJECT TITLES*

IPM SYSTEM COMPONENT DEVELOPMENT

Monitoring

- 8-Improvement of monitoring methods for major pests and diseases of olives.

Biological control

- 4-Inventory of major olive pests and their natural enemies.
- 5-Dynamics of parasites and their parasitization rates on black scale.
- 10-BC strategies for major olive diseases.
- 20-Identifying effective entomophagous insects for black scale.

Thresholds

- 9-Determination of economic thresholds for major olive pests.
- 22-Determination of mite incidence and damage.

Chemical and biorational control

- 6-Side effects of pesticides on natural enemies.
- 7-Application of *Bt* on the olive moth.
- 16-Testing of new pesticides for olives.
- 23-Optimal spray timing for peacock spot.
- 38-Effect of number of treatments against olive fly and olive moth.
- 39-Relative effect of ground and tree based baits on olive fly.
- 42-Effect of application timing on leaf spot and olive knot.
- 43-Potential for combining insecticide and fungicide sprays.

Cultural control

- 3-Influence of pruning systems on infestation of black scale.
- 31-Effect of pruning severity on *Pseudomonas* and leaf spot.

Crop management

- 3-Influence of pruning systems on infestation of black scale.
- 14-Field experiments on orchard floor management.
- 13-Perennial weed control.
- 21-Effect of pruning timing and severity on pests and diseases and therefore yield and quality.
- 25-Effect of harvest, transport and storage methods on oil quality and yield.
- 26-Effect of olive harvest timing on olive quality and yield.
- 27-Influence of irrigation level on oil yield and quality.
- 28-Fertilizer application and timing.
- 41-Effect of noncompetitive ground cover plants, mechanical cultivation and restrictive herbicide application.

Crop quality

- 39-Determination of the physical and chemical features (IOOC standards) of olive oil from Albanian cultivars.

Population dynamics

- 5-Dynamics of parasites and their parasitization rates on black scale.
- 18-Bionomic study of 3 major insect pests.

Non-chemical

- 19-Mass trapping studies to control olive fly.
- 36-Effectiveness of mating confusion methods for controlling olive fly.
- 40-Minimum block size and slope for effective use of sexual confusion.

SOCIO – ECONOMIC ANALYSIS AND POLICY

- 1-Cost benefit analysis of IPM program for olive trees.
- 35-Comparison of labor allocation levels between different pest control methods.
- 17-Effect of 3 major insect pests on oil production and quality.

INTEGRATION OF COMPONENT RESEARCH INTO IPM SYSTEMS

- 2-Socio-economic factors affecting adoption of IPM practices by olive producers.
- 11-Influence of agronomic factors on quality of olive.
- 12-Possibility of introducing exotic parasites to control major olive pests.
- 14-Field experiments on orchard floor management.
- 15-Organic olive production.
- 24-Rejuvenation of abandoned olive groves with pruning and fertilization.
- 29-Incorporating mechanization into pruning, harvesting and transporting.
- 32-Comparison of oil production between IPM and conventional practices.
- 37-Comparison of zoofauna diversity and numbers between IPM and traditional management schemes.

PRODUCT QUALITY

- 30-Insecticide residue determination in oil.

*The project number is listed before each title; this number does not indicate any kind of rank.

There was some discussion about how best to prioritize these. It was decided that every team member would have 5 votes, and more than one vote could be placed on a single title. Voting results can be found in Appendix III.

After voting, and listing the top 10 titles, these were combined into six projects to make the activities more integrated across disciplines and to make use of funds more efficient. The PA team

members then listed their names on the projects they were interested in working on (see the IPM CRSP Year 6 Workplan for the final list of co-PIs and collaborating scientists for each project).

- 1) Harvest timing, cost benefit analysis, olive fly dynamics.
- 2) Pruning, black scale.
- 3) Orchard floor management.
- 4) Spraying for leaf spot/peacock.
- 5) Major pests of olive.
- 6) Confusion and mass trapping.

On 30 July the project groups worked all day to write the 2-page proposals and make budgets for these six projects. On 31 July the AUT, PPRI and FTRI listed their equipment needs for each institution and these were synthesized for the group as a whole (Appendix IV).

The Site Chair then explained about the duties associated with the Site Coordinator position. He announced that the US team and the Albanian Ministry of Agriculture and Food had concurred with selection of Josef Tedeskini (PPRI) as the IPM CRSP/Albania Site Coordinator. The proposal was well accepted by all PA participants. The decision was made that the project site will be in the Vlora area, utilizing the facilities of the FTRI. The Site Chair emphasized that all three institutions will sign the Memorandum of Understanding.

CONCLUSIONS / RECOMMENDATIONS

The primary conclusion to be highlighted from this PA is that the above six projects/activities have been prioritized for implementation as a result of a detailed participatory process. Expansion of ideas and concepts concerning these activities can be found in the IPM CRSP Year 6 Workplan.

Overall, the authors conclude that the process used in this participatory appraisal was effective in determining which activities are likely to be most pertinent and helpful to Albanian olive growers and other stakeholders, in the context of olive pest management. However, there are some aspects of the PA that could be improved. The appraisal of Albanian institutions could have been better organized so that more in-depth and useful information could have been gained in the time available. Also, the process of narrowing down possible project topics could be refined so that it is more efficient and effective.

Strong aspects of this PA process include the Workshop on PA Methodology and the Informal Interviews with Farmers. The workshop prepared the team so that they were well-equipped to gain important information from stakeholders in a short amount of time. The informal interviews

with farmers were, in most cases, quite productive and efficient. The debriefing sessions were well-focused and enabled the process to progress so that useful conclusions could be drawn and a pertinent workplan could be derived.

ACKNOWLEDGEMENTS

We would like to thank Roger Kraynick and Kristaq Jorgji for their assistance in making preparations for the PA. Without their help we could not have accomplished nearly what we did.

ACRONYMS

AUT = Agricultural University of Tirana

FTRI = Fruit Tree Research Institute (located in Vlora)

IPM CRSP = Integrated Pest Management Collaborative Research Support Program

PA = Participatory Appraisal

PPRI = Plant Protection Research Institute (located in Durres)

SARA = Support for Agricultural Restructuring in Albania

USAID = United States Agency for International Development

REFERENCES

Daku, L., G.W. Norton, C.W. Pitts, G.C. Luther, D.G. Pfeiffer, D.B. Taylor and R. Uka (1999).
Farmers' Knowledge and Attitudes towards Pesticide Use and Olive Pest Management
Practices in Vlora, Albania: A Baseline Survey. IPM CRSP Working Paper (in preparation).

Ministry of Agriculture and Food (1997). *Statistical Yearbook, 1996*. Tirana, Albania.

APPENDICES

Appendix I: IPM CRSP / Albania Participatory Appraisal Team Members

Name	Specialization	Role
<i>American IPM CRSP Team</i>		
Charles Pitts Pennsylvania State University	Entomology	IPM CRSP / Eastern European Site in Albania, Site Chair
Gregory C. Luther Virginia Tech	Entomology	IPM CRSP Assistant Program Director
Keith M. Moore Virginia Tech	Rural Sociology	PA Team Leader
Doug Pfeiffer Virginia Tech	Entomology	
Lefter Daku Virginia Tech	Agricultural Economics	
Beth Teviotdale University of California, Davis	Plant Pathology	
Louise Ferguson University of California, Davis	Production	
Milt McGiffen University of California, Riverside	Weed Science	
<i>Agricultural University of Tirana</i>		
Fadil Thomaj	Horticulture	
Myzejen Hasani	Phytopathology	
Rexhep Uka	Entomology	
Magdalena Bregasi	Economics	
<i>Plant Protection Research Institute</i>		
Enver Isufi	Entomology	
Brunilda Stamo	Quarantine / Certification	
Harallamb Bace	Phytopathology	
Josef Tedeskini	Entomology	
<i>Fruit Tree Research Institute</i>		
Dhimitraq Toti	Production Techniques	
Hajri Ismaili	Olive Specialist (Breeding)	
Mendim Baci	Phytopathology	
Zaim Veshi	Extension	
Uran Abazi	Olive Specialist (graduate student)	

Translators: Irida Hoxha, Suzana Hasani, Mimoza Cakrani, Luljeta Çuko

Appendix II: Schedule For Albania PA

<i>Day</i>	<i>Morning</i>	<i>Afternoon</i>	<i>Evening</i>
Tuesday, 14 July through Monday, 20 July	Charlie Pitts and Lefter Daku: (1) collect secondary information; (2) meet with and inform key officials about the PA; (3) arrange for participation of PA collaborators; and (4) set up contacts with villages and institutions to be interviewed. Keith Moore arrives on 20 July.		
Tuesday, 21 July		Remaining US scientists arrive in Tirana	Overnight in Tirana
Wednesday, 22 July	Meeting at US Embassy. Drive to Fier	Presentations by IPM CRSP, AUT, PPRI, FTRI	Overnight in Fier
Thursday, 23 July	Workshop on PA methodology	Workshop and Logistics	Overnight in Fier
Friday, 24 July	Divide into 5 teams and visit villages and farmers (Vlore area)	Combined team debriefing on interviews	Overnight in Fier
Saturday, 25 July	Divide into 4 teams and visit villages and farmers (Berat area)	Combined team debriefing on interviews	Overnight in Fier
Sunday, 26 July	Divide into 5 teams and visit villages and farmers (Fier area)	Combined team debriefing on interviews	Overnight in Fier
Monday, 27 July	Combined team meetings with olive processor, tour of FTRI facilities	Presentations on olive IPM in Albania by PPRI, FTRI and AUT	Overnight in Fier
Tuesday, 28 July	Combined team meeting to begin project planning. Drive to Durres	Combined team meeting with PPRI. Drive to Tirana. Visit AUT's experimental farm	Overnight in Tirana
Wednesday, 29 July	Workshop: Synthesis and development of the workplan	Workshop: Synthesis and development of the workplan	Overnight in Tirana
Thursday, 30 July	Workshop: Development of proposals and budgets	Workshop: Development of proposals and budgets	Overnight in Tirana
Friday, 31 July	Workshop: Synthesis and development of the workplan	Workshop wrapup. Debriefing at USAID (Charlie Pitts).	Overnight in Tirana
Saturday, 1 August	Departure of US scientists from Tirana	Departure of US scientists from Tirana	

Appendix III. Results from Voting on Project Titles.

					Results of Voting for Priority Collaborative Research Projects																
	Person (voter)																				
Project	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total Votes	
1					5											1				6	
2																		1		1	
3	1		1									1	1						1	5	
4																				0	
5								5												5	
6																				0	
7																1				1	
8		2	1																	3	
9																				0	
10		1	1	1																3	
11	1											1	1			1				4	
12																				0	
13							3													3	
14				1			2									1		1		5	
15												1	1							2	
16																				0	
17		1															1		1	3	
18						5														5	
19										1							1			2	
20																				0	
21				1													1	1		3	
22																				0	
23										2	2			1						5	
24									2								1			3	
25	1											1	1							3	
26				1								1	1		4			1	1	9	
27	1		1																	2	
28															1					1	
29																				0	
30																				0	
31	1									2	2			4						9	
32									1											1	
33		1																		1	
34																				0	
35								2												2	
36																			1	1	
37																				0	
38																				0	
39																		1	1	2	
40			1														1			2	
41																				0	
42				1							1					1				3	
43																				0	
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	95	

Appendix IV: Equipment Needs

<i>AUT</i>	<i>PPRI</i>	<i>FTRI</i>
Autoclave Laminar flow hood Incubator 50-60 degrees Analytical balance Magnetic stir Water bath Microscope / cpd Spectrophotometer Water still pH meter Low speed centrifuge Refrigerator Densitometer Microtome Glassware for extraction Refractometer Pneumatic pruner Mechanical harvester Chainsaw Stereo scoped camera Glassware Hot plate	Microscope / cpd (2) Incubator (2) Stereo microscope (2) Camera Refrigerator Deep freeze (ultracold) Video camera Vortex app Growth chamber 35mm projector Overhead projector Screen Weather station Analytical balance Magnetic stir UV light Centrifuge Ultra-centrifuge (refrig.)	Stereo scope and camera Incubator Autoclave Grinder Olive press Weather station Spectrophotometer Growth chamber (3) Leaf area meter Tensiometer Densitometer (5) Centrifuge Hand sprayer Refrigerator Extraction equipment Sprayer (olive grove) Biurett apparatus Drying oven Pheromone dispenser
<i>Group equipment:</i> Gas chromatograph, Computers and printers, Scanner		